

Designation of Wetlands Buffers Widths

Wetlands cannot survive without the protection of their adjacent upland buffers – on this there is no disagreement – and thus should be considered as an integrated system. However, there is no agreement on a single buffer width that, according to the scientific literature, will protect wetlands completely under all conditions. Instead, the literature provides a range of widths to consider. Scientists tend to discuss optimum buffer widths in terms of particular goals such as protecting water quality, minimizing flood and storm damage, helping to recharge groundwater, protecting animal habitats to name a few. In addition, setting the most effective buffer widths depends on a number of buffer characteristics such as slope, hydrology, soil make-up, and vegetative cover. After considering the recommendations from the scientific literature and the needs of the town, the best approach is to set a buffer width that on average will provide adequate protection in general to a wetlands functioning.

Scientists acknowledge that differing characteristics of the buffers themselves (vegetation, slope, soil, hydrology, width) help determine their effectiveness. However, in light of the range of buffer widths recommended to protect different functions, it is not practical to set buffer widths based on site-specific characteristics. It is more practical and less expensive to apply one or two minimum buffer width requirements for town wetlands, rather than attempt to assess individual sites independently.

Again, recommended buffer widths range widely depending on the buffer functions to be protected such as water quality, flood control, water recharge, wildlife habitat, erosion control, temperature control. Generally the wider the buffer the greater the protection to the wetlands. Studies note that sediment, nitrogen, phosphorus and other contaminants can be sources of significant pollution of lakes and rivers (see Wenger 1999) and our ground water and aquifers.

Wetlands and adjacent buffers provide effective filtration mechanisms to purify runoff into water bodies with recommended widths running from as little as 30' to as much as 300' or more. The literature also notes that in terms of water quality no buffers less than 25' provided any protection from disturbance to wetlands but buffers 50' or greater showed fewer signs of disturbance (see especially McElfish, et al., 2008). A wide variety of wildlife species depend on wetlands and adjacent upland areas for their life cycle needs (e.g. breeding, foraging, overwintering). The size of upland areas utilized by wildlife varies enormously and recommendations for protecting wildlife habitat depending on the species ranges from as little as 430' to more than 5000'.

On average, the literature suggests that a 50' to 100' buffer can provide adequate protection for wetland and buffer functioning, especially water quality and wildlife habitat, with differing widths adjusted for the significance of the wetland. In an assessment commissioned by the town, GZA Geoenvironmental, Inc. identified 25 wetlands in the town as particularly significant. In consideration of this assessment and after a careful review of a number of scientific studies, it was decided that the Wetlands and Watershed Protection Ordinance should designate 100' buffers for the most significant wetlands in Webster which includes the 25 identified in the GZA report, vernal pools, and some other wetlands larger than 2 acres, and 50' buffers for other smaller wetlands that are important but less so than those warranting a 100' buffer. For more detailed information, to include the range of recommended buffer widths to protect various buffer functions, see references in annotated bibliography on this website. The GZA report may also be reviewed on-line.

